# WESTERN ENGINEERING

Vol. 1, No. 9 SAN FRANCISCO, DECEMBER, 1912 $3 per year 25c per copy


## LEADING ARTICLES


### Mission Viaduct

By C. M. Taylor

A notable example of reinforced concrete construction carried to successful conclusion by the San Francisco city engineering department.

### Comments on Irrigation Congress

By Frederick H. Newell

An account of what was accomplished, with suggestions for future progress.

### Future of Oil Production in California

By R. P. McLaughlin

An expert estimate, with comments especially interesting to oil producers.

### The Low-Temperatures Laboratory at Leyden

By G. Bresch

An account of a remarkable laboratory for scientific research.

### Water Hammer

By S. L. Berry

A discussion of the cause and how to calculate the effect of this phenomenon pertaining to the flow of water in pipes.

### Hydraulicking at Panama

By Charles S. Haley

The part played by the hydraulic monitor in digging the 'big ditch.'

*FOR FULL TABLE OF CONTENTS SEE PAGE 683.*



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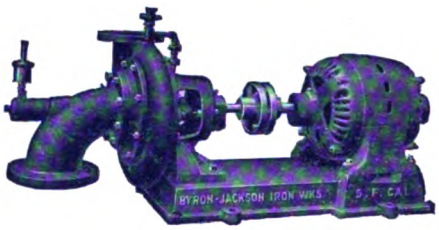


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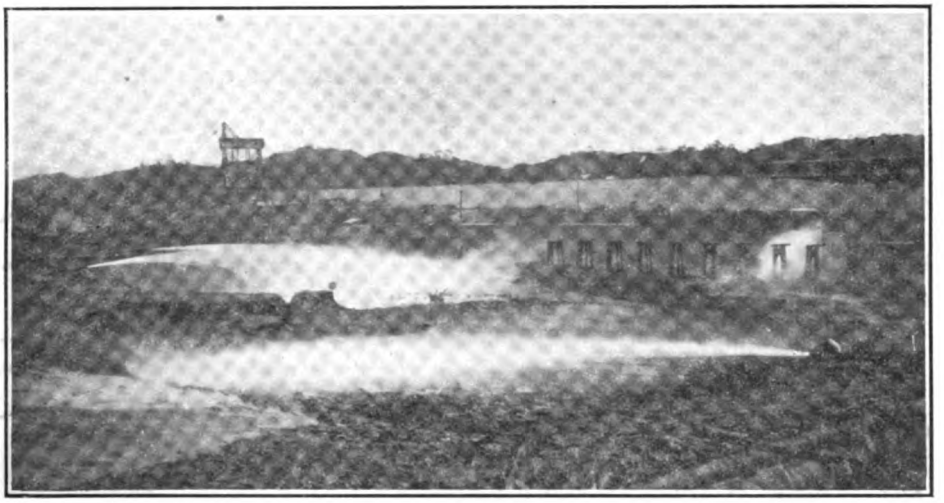

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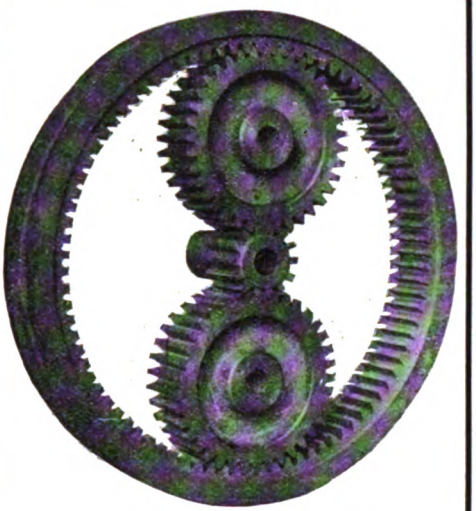

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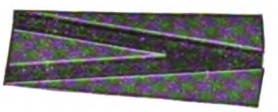

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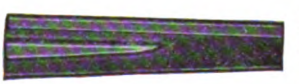

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# An Auspicious Commencement

for the New Year is shown by the announcement of the partial table of contents for the **JANUARY WESTERN ENGINEERING.**

**SAN FRANCISCO SEWER SYSTEM**

By A. J. JUDELL and H. W. SCHIMER

Two bond issues aggregating $11,000,000 were voted to provide funds for the complete reconstruction of San Francisco's sewer system. Of this amount, approximately $5,000,000 has been expended thus far. To what purpose this money has been spent, the engineering problems involved and their solution by the city engineering department constitute the most interesting contribution yet published dealing with municipal sanitary engineering.

**SEATTLE HARBOR IMPROVEMENTS**

By PAUL P. WHITMAN

The city of Seattle is fully alive to the approach of a new era in Pacific coast shipping. No less than $13,500,000 is being spent for harbor improvements by the metropolis of the north Pacific coast. The chief engineer under whose immediate supervision this work is being carried out has prepared a comprehensive discussion of the plans and work under way, for the benefit of readers of *Western Engineering.*

**ELECTRIC POWER IN THE OILFIELDS**

By A. EMORY WISHON

This is the first of a series of four articles dealing with oil production by electric power, and shows how the prime consideration of readiness to serve and continuity of service are assured to those who may be interested in learning how they may reduce the cost of oil production in many cases more than 75 per cent.

**THE RONDOUT SIPHON**

By J. F. SPRINGER

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THE ENGINEERING DIGEST will contain abstracts of matters of special interest to Western engineers, while the ENGINEERING NEWS, BOOK REVIEWS, ENGINEERING BONDS, COMPANY REPORTS, HINTS ON PRACTICE, and ENGINEERS' NOTE BOOK present a symposium of news of Western engineering events.

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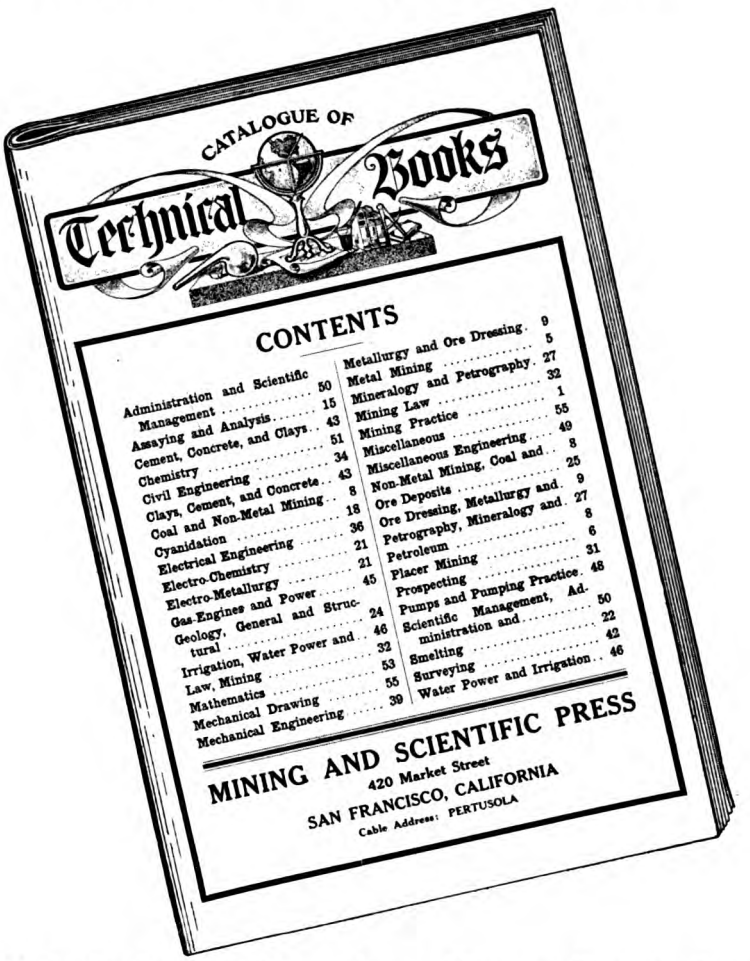


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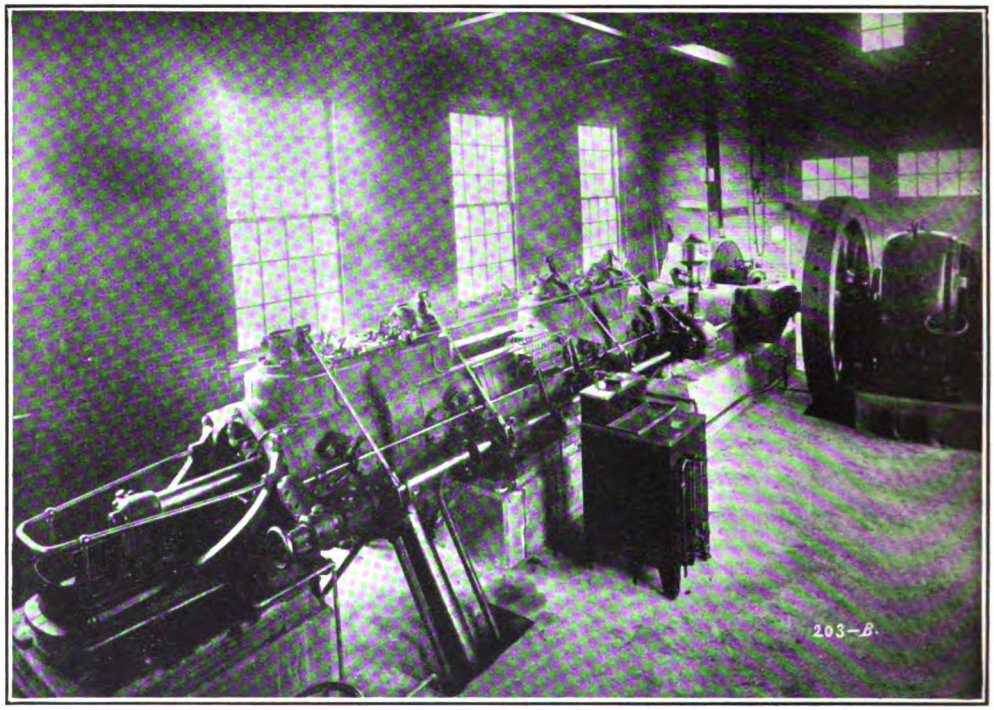


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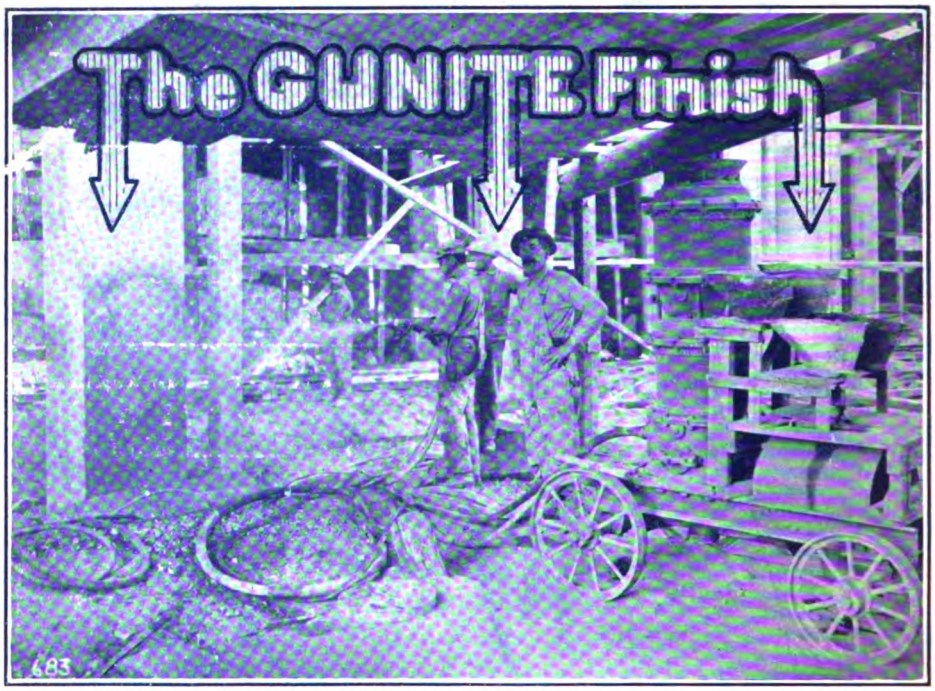


This illustration shows part of 14,169 square yards of exposed surface on the Mission Street Viaduct, San Francisco, covered one-quarter inch thick with **Gunite.**

**Gunite** is the peculiar cement stucco made and placed simultaneously by the revolutionary principles patented in the "Cement-Gun." Gunite finish is now being applied to the Geary Street Municipal Railway Car Barns and the Incinerator, San Francisco. Gunite is a quality of cement stucco never before thought possible. It is the non-porous, non-cracking, impermeable covering for the supporting cylinders of the Great Northern Ry. dock, Vancouver.

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